e-GRO Alert

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Garden Mums: The Possibilities of Seeing Red

What is causing a mum plant to develop red leaves is a common late-season question? We will explore the multiple possibilities that result in red leaves.

Figure 1. Typical symptoms of overall purpling (and yellowing) due to root rot. (Photo: Brian Whipker)

Red leaves on garden mums can develop due to several possible factors.

Root Rot. *Pythium* root rot and cold temperatures can result in an uptick of anthocyanin production in the leaves, causing red foliage of the overall plant (Fig. 1). Usually this occurs on a single plant or isolated plants around the mum field. Inspecting the roots for rot will help diagnose the problem.

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Stem Cracks. Single stems or sides of the plant that develop red leaves are usually a result of stem cracks (Fig. 2). Usually the crack occurs at the base of the stem where it attaches to the central stem. Stem cracks can result from mechanical damage from brushing against the plant, wind damage, weak stems, or heavy stems that break. These cracks are often challenging to observe when inspecting the plant which makes diagnosing the situation difficult.

Phosphorus Deficiency, Type 1 Cool Season. The typical symptomology of a phosphorus (P) deficiency is lower leaf purpling or reddening (Fig. 3). Red coloration is enhanced by cool temperatures too. Low P concentrations, cold temperatures, and wet substrate conditions can all play a part in the development of symptoms.

Phosphorus Deficiency, Type 2 Warm Season. It should be noted that warm season phosphorus deficiency symptoms do not necessarily develop into the "typical" red leaves. Instead, the plant develops lower leaf olive-green spotting and yellowing, followed by leaf necrosis (Fig. 4). Please refer to e-GRO Alert 3-62 for additional details.

Conclusion

There are several possibilities as to why purpling can occur in a garden mum crop. Utilizing these tips will help you diagnose a problem.

Figure 2. Single red stems are typically the result of stem cracking. (Photo: Brian Whipker)

Figure 3. Lower leaf purpling on the entire plant can result when phosphorus is limited due to a deficiency, cold growing or wet substrate conditions. (Photo: Brian Whipker)

Figure 4. Lower leaf olive-green spotting and yellowing occurs when phosphorus is limited during warm weather growing conditions. Leaf necrosis follows as symptoms advance. (Photo: Brian Whipker)

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NYSFI — New York State Flower Industries, Inc.

Seeing Red
in Garden Mums

Brian Whipker & Patrick Veazie, Floriculture Research and Extension

A quick guide for identifying red discoloration in garden mums. If in doubt, sent it out to confirm your diagnosis.

1

Overall red and yellowing due to root rot

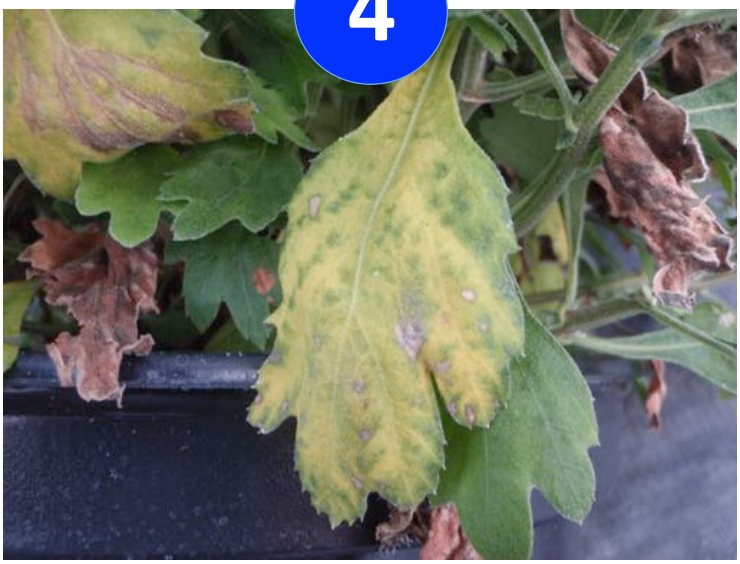
2

Red stem due to cracking

3

Phosphorus Deficiency: Red leaves with low P, cold growing, or wet conditions

4



Phosphorus Deficiency: Olive-green spotting during warm temperatures